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ABSTRACT

A teaching method is described in which students work together in small groups learning a subject as a team. In this method, the consequences of a student's performance affect all members of the team and therefore promote cooperation and positive reinforcement within the group. Four basic elements comprise this teaching strategy: teacher presentation (rules); peer practice (worksheet); individual evaluation (game/quiz); and public knowledge of performance (team summary sheet). A sample module that may be used to demonstrate this teaching method is included in this document. (JD)

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CAN LEARNING TEAMS IMPROVE INSTRUCTIONAL EFFECTIVENESS?

J. Richard Lewis

TOPICS LIKE MINE, "CAN LEARNING TEAMS IMPROVE INSTRUCTIONAL EFFECTIVENESS?" GIVE ME THE FANTODS. PERHAPS IN SOME CONFERENCE IN THE FUTURE, SOME CONFERENCE AFTER THE MILLENNIUM HAS ARRIVED, SOME SPEAKER MORE COURAGEOUS THAN MYSELF WILL HAVE A TOPIC LIKE MINE FOR WHICH THE ANSWER IS EQUALLY PREDICTABLE (PERHAPS "CAN MOVIE STARLETS BE PERSUADED BY DIAMONDS AND CHAMPAGNE") TO WHICH HE WILL ANSWER "NO" AND SIT DOWN. I ASSUME YOU REALIZE I AM NOT THAT BRAVE SOUL AND YOU ARE NOT THAT LUCKY. I PROMISE YOU THAT IF I DIDN'T BELIEVE LEARNING TEAMS CAN IMPROVE INSTRUCTIONAL EFFECTIVENESS, I WOULDN'T DARE TO STAND HERE BEFORE YOU.

BECAUSE THAT TITLE BOTHERS ME SOMEWHAT, LET ME TAMPER WITH IT A BIT. I REALLY WANT TO SHARE WITH YOU SOME IDEAS ON AN EVEN LARGER ISSUE - THAT OF COOPERATIVE LEARNING USING LEARNING TEAMS.

LET ME START OUT BY DESCRIBING THREE COMPONENTS WHICH ARE PRESENT IN ALMOST ANY METHOD OF INSTRUCTION:

- TASK STRUCTURE
- AUTHORITY STRUCTURE
- REWARD STRUCTURE

TASK STRUCTURE, IN MY DEFINITION, REFERS TO THE ACTIVITIES THAT MAKE UP THE INSTRUCTIONAL METHOD, FOR EXAMPLE THE LECTURE, THE CLASS DISCUSSION, THE WORKSHEET, THE LABORATORY EXPERIMENT, THE READING OF A STORY, THE WORKING OF COMPUTATIONAL PROBLEMS, AND THE LIKE.

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AUTHORITY STRUCTURE REFERS TO WHO DECIDES REGARDING THE STUDENTS ACTIVITIES. FOR EXAMPLE, IN SOME CLASSES, THE TEACHER DECIDES WHAT WILL BE DONE; THE STUDENTS DO IT . IN OTHER SETTINGS THE STUDENTS WILL DETERMINE WHAT THEY WISH TO DO AND THE TEACHER WILL FACILITATE THEIR ACTIVITIES.

REWARD STRUCTURE REFERS TO THE AWARDS OR PUNISHMENT FOR BEHAVIORS, FOR EXAMPLE, GRADES, TEACHER APPROVAL, PEER APPROVAL, PRIZES, TROPHIES, SCHOLARSHIPS, AND SO FORTH.

IT IS THIS LAST CATEGORY, THE REWARD STRUCTURE, TO WHICH WE WISH TO GIVE OUR GREATEST ATTENTION.

COOPERATIVE LEARNING MAY INVOLVE CHANGES IN ALL THREE OF THESE ELEMENTS OF CLASSROOM TECHNOLOGY, BUT IS MAINLY IN THE AREA OF THE REWARD STRUCTURE, INTERPERSONAL REWARD STRUCTURE, (THAT IS - THE CONSEQUENCES OF A STUDENT'S PERFORMANCE OR HIS OR HER CLASSMATES PERFORMANCE) WHERE COOPERATIVE LEARNING HAS ITS GREATEST FOCUS. THAT CHANGE IS FROM A COMPETITIVE REWARD STRUCTURE TO A COOPERATIVE REWARD STRUCTURE.

LET'S DISCUSS BRIEFLY THE THREE MOST COMMON REWARD STRUCTURES FOR AMERICAN SCHOOLS, AND LIKELY SCHOOLS EVERYWHERE. IN THE FIRST AND MOST COMMON MODEL, THE COMPETITIVE CLASSROOM, WHERE STUDENTS ARE MEASURED AGAINST GROUP NORMS, THE SUCCESS OF ONE STUDENT DEPENDS ON THE FAILURE OF ANOTHER. ALL STUDENTS ARE COMPETING FOR A FINITE NUMBER OF REWARDS AND SOME STUDENTS WIN ONLY BY SOME OTHER STUDENTS LOSING. THE REWARD SYSTEM IS, THEN, NEGATIVE INTERDEPENDENT. A SECOND MODEL RECENTLY MUCH IN VOGUE, BUT LESS SO NOW, IS THE INDEPENDENT MODEL (INDIVIDUALIZED INSTRUCTION), WHERE EACH STUDENT HAS ONLY HIS OR HER OWN LEARNING OBJECTIVES AND IS MEASURED ONLY AGAINST HIMSELF OR HERSELF. THE PERFORMANCE OF ONE STUDENT DOES NOT AFFECT ANOTHER; THUS, THE REWARD SYSTEM IS INDEPENDENT.

THE THIRD MODEL, AND THE ONE COMMON ON ATHLETIC FIELDS, BUT RARE IN CLASSROOMS, IS THE COOPERATIVE MODEL, WHERE ONE STUDENT'S SUCCESS HELPS ANOTHER TO BE SUCCESSFUL. THE REWARD SYSTEM IN THIS MODEL IS POSITIVE INTER-DEPENDENT. IT IS OF COURSE THIS MODEL, THE COOPERATIVE MODEL, THAT WE WISH TO EXAMINE.

THE PROBLEM IS IN PART NOT OUR RELUCTANCE TO CONSIDER THE COOPERATIVE MODEL. INDEED, WE ARE PERSUADED THAT IT IS VERY APPROPRIATE FOR CERTAIN PLACES SUCH AS THE SPORTS FIELD. THE PROBLEM MAY BE, OR MAY HAVE BEEN, OUR ABILITY TO SEE HOW TO BRING IT OFF THE FIELDS, THROUGH THE HALLS, AND INTO THE CLASSROOMS. IF THIS IS PART OF THE PROBLEM, PERHAPS THE WORK OF MANY PEOPLE - COLMAN, ARONSON, DeVRIES, SLAVIN, EDWARDS, AND OTHERS CAN BE OF USE.

BY WAY OF HELPING YOU TO SEE HOW COOPERATIVE LEARNING CAN BE A VIABLE CLASSROOM TECHNIQUE, WE WOULD LIKE TO SIMULATE WITH YOU A VERY SIMPLE COOPERATIVE LEARNING, OR TEAM LEARNING STRATEGY.

PLEASE DIVIDE YOURSELVES INTO GROUPS OF FOUR, THE PERSON BESIDE YOU AND THE TWO PERSONS SEATED IMMEDIATELY AHEAD OF BOTH OF YOU (GROUPS OF FIVE ARE OK). PLEASE FOLLOW THESE STEPS:

STEP 1 - TAKE FROM THE FOLDER 1 COPY PER 2 PERSONS OF "WORKSHEET: QUIBBLEAN SPELLING; QUIBBLEAN SPELLING RULES."

STEP 2 - READ THE RULES ALOUD, ONE TO ANOTHER.

STEP 3 - TAKE FROM THE FOLDER 1 COPY PER 2 PERSONS "WORKSHEET: "QUIBBLEAN SPELLING." FOLLOW THE DIRECTIONS. YOU MAY WRITE ON THE PAPER.

STEP 4 - WHEN FINISHED WITH THE WORKSHEET, TAKE FROM THE FOLDER 1 COPY PER 2 PERSONS "WORKSHEET: QUIBBLEAN

SPELLING - ANSWER SHEET." CHECK YOUR ANSWERS. STUDY YOUR RULES AND PREPARE FOR TESTING.

STEP 5 - PUT AWAY ALL MATERIALS. TAKE 1 COPY PER PERSON "GAME/QUIZ: QUIBBLEAN SPELLING." COMPLETE THE TEST.

STEP 6 - TAKE FROM THE FOLDER 1 COPY PER 2 PERSONS "GAME/QUIZ: QUIBBLEAN SPELLING-ANSWER SHEET." CHECK AND MARK THE NUMBER CORRECT AT THE TOP OF YOUR TEST.

STEP 7 - TAKE FROM THE FOLDER 1 COPY PER 4 PERSONS "TEAM SUMMARY SHEET." FILL OUT TEAM MEMBERS NAMES AND SCORES AND SUM TOTAL TEAM SCORE. IF FIVE PERSON TEAM, DROP LOWEST SCORE; IF THREE PERSON TEAM, DOUBLE LOWEST SCORE.

YOU HAVE JUST EXPERIENCED A COOPERATIVE TEAM LEARNING STRATEGY. ALL THE STRATEGIES THAT I WILL DESCRIBE FOR YOU HAVE THE SAME COMPONENTS THAT YOU JUST EXPERIENCED.

1. TEACHER PRESENTATION (RULES)
2. PEER PRACTICE (WORKSHEET)
3. INDIVIDUAL EVALUATION (GAME/QUIZ)
4. PUBLIC KNOWLEDGE OF PERFORMANCE (TEAM SUMMARY SHEET)

ALTHOUGH MUCH MORE ELABORATE IN SOME OF THE MODIFICATIONS, THESE ARE THE ELEMENTS OF ALL THE STUDENT TEAM LEARNING STRATEGIES DEVELOPED THUS FAR AT THE JOHNS HOPKINS CENTER FOR THE SOCIAL ORGANIZATION OF SCHOOLS. LET ME BRIEFLY DESCRIBE SOME OF THEM FOR YOU:

- TEAMS-GAMES-TOURNAMENTS
- STUDENT TEAMS - ACHIEVEMENT DIVISIONS
- JIGSAW II

TEAMS-GAMES-TOURNAMENT. TEAMS-GAMES-TOURNAMENT (TGT) IS BUILT AROUND TWO MAJOR COMPONENTS: 4 - 5 MEMBER STUDENT TEAMS, AND INSTRUCTIONAL TOURNAMENTS. THE TEAMS ARE THE COOPERATIVE ELEMENT OF TGT. STUDENTS ARE ASSIGNED TO TEAMS ACCORDING TO A PROCEDURE THAT MAXIMIZES HETEROGENEITY OF ABILITY LEVELS, SEX AND RACE. THE PRIMARY FUNCTION OF THE TEAM IS TO PREPARE ITS MEMBERS TO DO WELL IN THE TOURNAMENT. FOLLOWING AN INITIAL CLASS PRESENTATION BY THE TEACHER, THE TEAMS ARE GIVEN WORKSHEETS COVERNING ACADEMIC MATERIAL SIMILAR TO THAT TO BE INCLUDED IN THE TOURNAMENT. TEAMMATES STUDY TOGETHER AND QUIZ EACH OTHER TO BE SURE THAT ALL TEAM MEMBERS ARE PREPARED.

AFTER THE TEAM PRACTICE SESSION, TEAM MEMBERS MUST DEMONSTRATE THEIR LEARNING IN THE TOURNAMENT WHICH IS USUALLY HELD ONCE EACH WEEK. FOR THE TOURNAMENT, STUDENTS ARE ASSIGNED TO THREE PERSON "TOURNAMENT TABLES." THE ASSIGNMENT IS DONE SO THAT COMPETITION AT EACH TABLE WILL BE FAIR -- THE HIGHEST THREE STUDENTS IN PAST PERFORMANCE ARE ASSIGNED TO TABLE 1, THE NEXT THREE TO TABLE 2, AND SO ON. AT THE TABLES, THE STUDENTS COMPETE ON SIMPLE ACADEMIC GAMES COVERING CONTENT THAT HAS BEEN PRESENTED IN CLASS BY THE TEACHER AND ON THE WORKSHEETS. STUDENTS AT THE TOURNAMENT TABLES ARE COMPETING AS REPRESENTATIVES OF THEIR TEAMS, AND THE SCORE EACH STUDENT EARNS AT HIS OR HER TOURNAMENT TABLE IS ADDED INTO AN OVERALL TEAM SCORE. BECAUSE STUDENTS ARE ASSIGNED TO ABILITY-HOMOGENEOUS TOURNAMENT TABLES, EACH STUDENT HAS AN EQUAL CHANCE OF CONTRIBUTING A MAXIMUM SCORE TO HIS OR HER TEAM, AS THE FIRST PLACE SCORER AT EVERY TABLE BRINGS THE SAME NUMBER OF POINTS TO HIS OR HER TEAM. FOLLOWING THE TOURNAMENT, THE TEACHER PREPARES A NEWSLETTER WHICH RECOGNIZES SUCCESSFUL TEAMS AND FIRST PLACE SCORERS. WHILE TEAM ASSIGNMENTS ALWAYS REMAIN THE SAME, TOURNAMENT TABLE ASSIGNMENTS ARE CHANGED FOR EVERY TOURNAMENT ACCORDING TO A SYSTEM THAT MAINTAINS EQUALITY OF PAST PERFORMANCE AT EACH TABLE.

STUDENT TEAMS-ACHIEVEMENT DIVISIONS. STUDENT TEAMS-ACHIEVEMENT DIVISIONS (STAD) USES THE SAME 4 - 5 MEMBER HETEROGENEOUS TEAMS USED IN TGT, BUT REPLACES THE GAMES AND TOURNAMENTS WITH SIMPLE, 15-MINUTE QUIZZES, WHICH STUDENTS TAKE AFTER STUDYING IN THEIR TEAMS. THE QUIZ SCORES ARE TRANSLATED INTO TEAM SCORES USING A SYSTEM CALLED "ACHIEVEMENT DIVISIONS." THE QUIZ SCORES OF THE HIGHEST SIX STUDENTS IN PAST PERFORMANCE ARE COMPARED, AND THE TOP SCORER IN THIS GROUP (THE ACHIEVEMENT DIVISION)EARNS EIGHT POINTS FOR HIS OR HER TEAM, THE SECOND SCORER EARNS SIX POINTS, ETC. THEN THE QUIZ SCORES OF THE NEXT HIGHEST SIX STUDENTS IN PAST PERFORMANCE ARE COMPARED, AND SO ON. IN THIS WAY, STUDENT SCORES ARE COMPARED ONLY WITH THOSE OF AN ABILITY-HOMOGENEOUS REFERENCE GROUPS INSTEAD OF THE ENTIRE CLASS. A "BUMPING" PROCEDURE CHANGES DIVISION ASSIGNMENTS FROM WEEK TO WEEK TO MAINTAIN EQUALITY. STUDENTS KNOW ONLY THEIR OWN DIVISION ASSIGNMENTS; THEY DO NOT INTERACT IN ANY WAY WITH THE OTHER MEMBERS OF THEIR DIVISION. THE ACHIEVEMENT DIVISION FEATURE MAINTAINS THE EQUALITY OF OPPORTUNITY FOR CONTRIBUTIONS TO THE TEAM SCORE AS IN TGT.

JIGSAW II ROBERT SLAVIN (1978b) CONSTRUCTED A MODIFICATION OF ARONSON'S JIGSAW. IN JIGSAW II, STUDENTS ALL READ THE SAME MATERIAL BUT FOCUS ON SEPARATE TOPICS. IN A BIOGRAPHY, FOR EXAMPLE, "EARLY YEARS," "SCHOOLING," "FIRST ACCOMPLISHMENTS," ETC., WOULD BE THE SEPARATE TOPICS. THE STUDENTS FROM DIFFERENT TEAMS WHO HAVE THE SAME TOPICS MEET TO DISCUSS THEIR TOPICS, AND THEN RETURN TO TEACH THEM TO THEIR TEAMMATES. THEN TEAM MEMBERS THEN TAKE A QUIZ, AND THE QUIZ SCORES ARE USED TO FORM TEAM SCORES AS IN STAD.

OTHER TECHNIQUES, SUCH AS "RUTABEGA," AND "DICTATION" ARE DESCRIBED IN THE MANUAL TO WHICH YOU ARE WELCOME.

WHAT ARE THE EFFECTS OF THE COOPERATIVE STUDENT TEAM LEARNING ON STUDENTS PERFORMANCE IN SCHOOL? I AM HAPPY TO REPORT THAT IN A SERIES OF OVER

18 CONTROLLED EXPERIMENTS, THE EFFECT IN THREE AREAS - LEARNING, RACE RELATIONS AND MUTUAL CONCERN - THE STL TECHNIQUE IN THE MAIN WERE SIGNIFICANTLY SUPERIOR TO THE TECHNIQUES AGAINST WHICH THEY WERE COMPARED (A SUMMARY OF THOSE RESULTS IS AVAILABLE TO YOU TODAY AS WELL AS A BIBLIOGRAPHY).

WE, ALL OF US WORKING IN THE AREA OF COOPERATIVE LEARNING, ARE EXCITED BY ITS POTENTIAL, PROMISE, AND PROSPECTS. WE WOULD GENUINELY WELCOME YOUR SUGGESTIONS, OBSERVATIONS, CONTRIBUTIONS. WE INVITE YOU TO HELP US EXPLORE COOPERATIVE LEARNING AND OFFER OURSELVES TO YOU IN ANY WAY WE CAN BE OF ASSISTANCE TO YOU IN YOUR EXPLORATION.

Worksheet: Quibblean Spelling

Quibblean Spelling Rules

Spelling on the planet Quibble is phonetic, just as it is in general in English. However, as in English, there are some peculiarities in Quibblean spelling. These spelling rules are summarized below:

1. "H" always follows "A", unless the word begins with "Q" (see #6).

2. There is no "M" or "N" on Quibble, but a single sound that is written "MN".

3. "Z" always follows "T", except at the beginnings of words, when "T" always follows "Z", or in words that begin with "Q" (see #6).

4. There is always a dash between "B" and "D", no matter which comes first, unless the word begins with "Q" (see #6).

5. An apostrophe always separates any letter and a following "Q", unless the word begins with "Q" (see #6).

6. None of the above rules apply to words that begin with "Q". Any word beginning with "Q" is correctly spelled no matter what, except that no word beginning with "Q" can have an "MN" in it (they don't get along).

7. With the above restrictions, all possible spellings are correct.

Worksheet: Quibblean Spelling

Directions: Say if the following words in the Quibblean tongue are correctly or incorrectly spelled.

1. Doobah
2. Smnirx
3. Quibblet
4. Itzahtzo
5. Quamn
6. Tzahp
7. Skibdoutz
8. Quaquers
9. Iztahmnbul
10. Bahlb-Dmnr
11. Mnahquahrk
12. Hatzoff
13. Dab-Dab
14. Quaf
15. Rubahdu'qui
16. Wahtzub-dahk
17. Nyahr'q
18. Quabdot
19. I'quitz
20. Mnutz
21. Inqwire
22. Quidbroquo
23. Ztriki
24. Quahgmnire
25. Snyxx

Worksheet: Quibblean Spelling

Answer Sheet

1. correct
2. correct
3. correct
4. correct
5. incorrect (rule #6)
6. incorrect (rule #3)
7. incorrect (rule #4)
8. correct
9. incorrect (rule #3)
10. correct
11. incorrect (rule #5)
12. incorrect (rule #1)
13. incorrect (rule #1)
14. correct
15. correct
16. correct
17. incorrect (rule #2)
18. correct
19. correct
20. correct
21. incorrect (rule #5)
22. correct
23. correct
24. incorrect (rule #6)
25. incorrect (rule #2)

Game/Quiz: Quibblean Spelling

Directions: Say if the following words in the Quibblean tongue are correctly or incorrectly spelled.

1. Fa' Qutzimnle
2. Ahrotziztahrotz
3. Bahlb-dmnr
4. Owtzahluk
5. Quamn
6. Ztlahbdab
7. Quaquers
8. Hootzahmnfrstz
9. Inquahmpoop
10. Rubahdu' Qui
11. Ztahpitz
12. Kub-d' Quahk
13. Iahmnahrahq
14. Quahgmnire
15. Wahtzmahline

Game/Quiz: Quibblean Spelling

Answer Sheet

1. Incorrect (rule #1)
2. Incorrect (rule #3)
3. Correct
4. Correct
5. Incorrect (rule #6)
6. Incorrect (rule #4)
7. Correct
8. Correct
9. Incorrect (rule #2)
10. Correct
11. Correct
12. Correct
13. Incorrect (rule #5)
14. Incorrect (rule #6)
15. Incorrect (rule #2)

TEAM SUMMARY SHEET

Team Name _____

Team Members	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Total Team Score														
Transformed Team Score														
Team Standing This Week														
Cumulative Score														
Cumulative Standing														

Table 2

Effects of Cooperative Learning Techniques

on Learning, Race Relations, and Mutual Concern

Study Number	Subject Area	Academic Achievement: Curriculum-Specific Test	Academic Achievement: Standardized Test	Race Relations	Mutual Concern
TGT					
1	Math	+	+	+	
2	Math	+		0	+
3a	Math	+		+	+
b	Social Studies	0			
4	Math		+		
5	Social Studies	+	0	+	+
6	Language Arts	+	+		0
7	Language Arts	+	+		0
8a	Reading Vocabulary	+			
b	Verbal Analogies	+			
9	Language Arts	+	0		+
10	Social Studies	0	0		+
STAD					
11	Language Arts	0	0		+
12	Language Arts	+	+	+	0
13	Language Arts	+	+		+
14	Language Arts	0	0	+	+
15	Language Arts	0	+	+	0
Jigsaw					
16	Social Studies	0			
17	Social Studies	+			
Combined Program					
18a	Math (TGT)		0		+
b	Language Arts (STAD)		+		
c	Social Studies (Jigsaw II)		0		
d	Reading (Jigsaw II)		+		
Small-Group Teaching					
19	Social Studies				
	a. Grade 2	+			
	b. Grade 3	0			
	c. Grade 4	+			
	d. Grade 5	0			
	e. Grade 6	+			